

E 115 120 125 130 135 140 145 150 155 160 165 E
N 50

TYPHOON WAYNE
BEST TRACK TC-25W
16 SEP-21 SEP 89
MAX SFC WIND 65KT
MINIMUM SLP 976MB

45

40

35

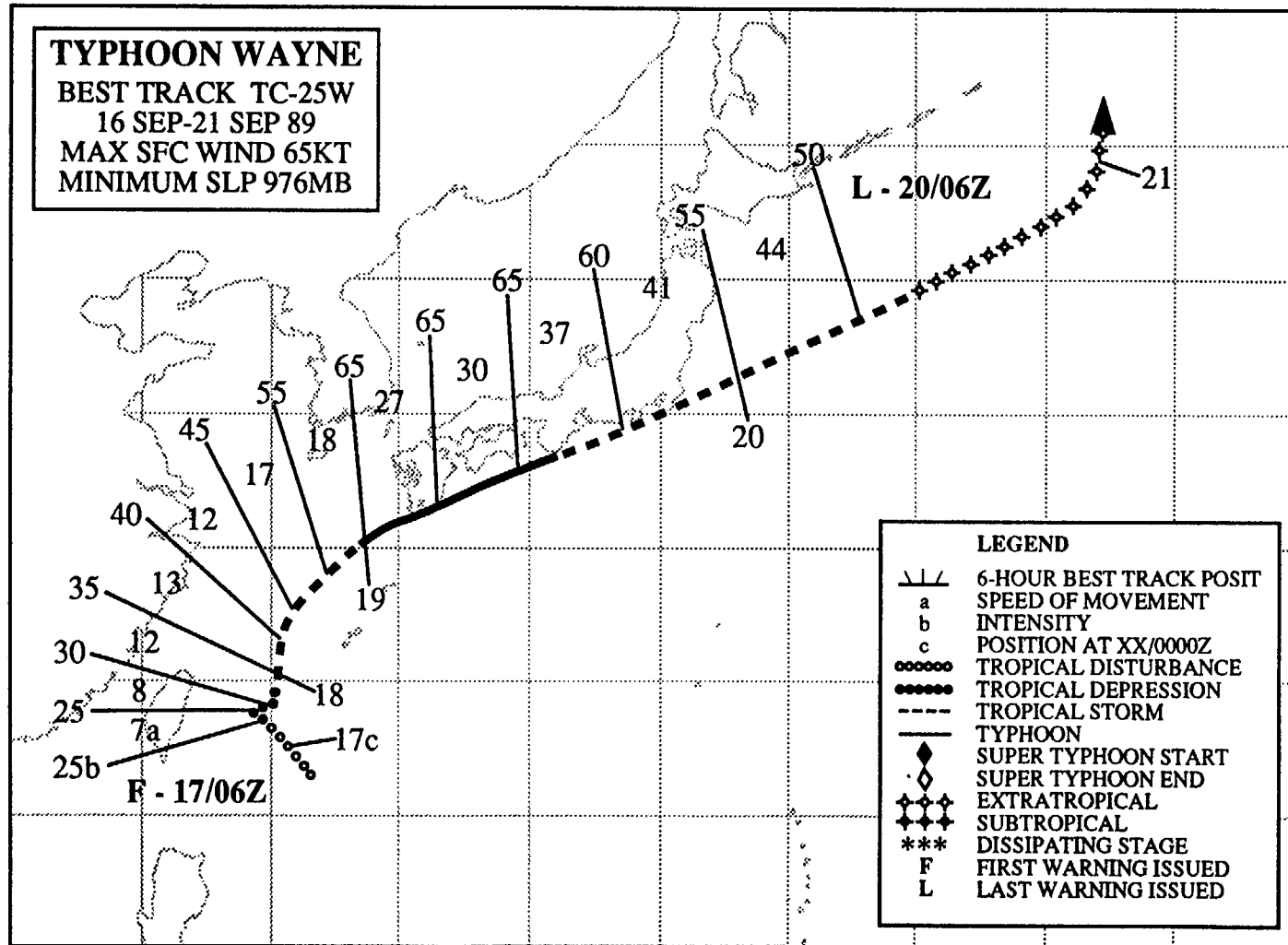
30

25

20

N 15

134



TYPHOON WAYNE (25W)

The last of four tropical cyclones to develop in September, Wayne was also the last tropical cyclone of 1989 to affect Japan. It was unique in that it intensified after recurvature. Wayne caused considerable destruction, mudslides and some deaths in Japan.

About 24 hours after Tropical Storm Vera (24W) had dissipated over eastern China, the first warning on Tropical Depression 25W was issued at 170600Z indicating maximum sustained winds of 25 kt (13 m/sec). The depression formed approximately 300 nm (555 km) southwest of Okinawa and was expected to continue on a northwestward track into China before it could reach tropical storm intensity. JTWC issued a second Tropical Depression Warning at 171800Z. At that time, the six-hour

movement was thought to have been to the west; however, detailed post-analysis indicated that the system had, in fact, turned northward. The turn to the north as well as further intensification became evident by 180000Z. The depression was upgraded to Tropical Storm Wayne and was forecast to track northeast through central Honshu and dissipate near Tokyo.

JTWC forecasters maintained that forecast scenario until 181200Z, when they took the track more northward into the Sea of Japan. This change in thinking was based on the persistent northward movement and the NOGAPS prognostic series that indicated a deepening low in the Sea of Japan would attract the system. JTWC's prognostic reasoning

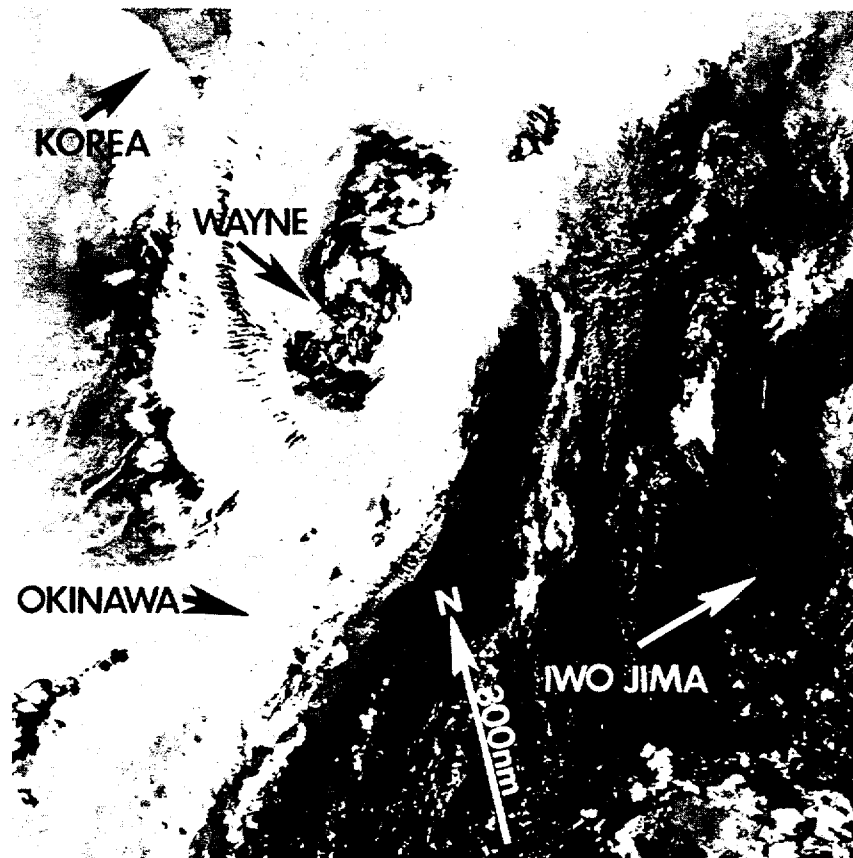


Figure 3-25-1. Typhoon Wayne along the southern coast of Japan (190932Z September DMSP enhanced infrared imagery).

discussed the possibility of the system being caught by the approaching frontal system and remaining south of Japan. The strong vertical wind shear present east of Korea was expected to prevent Wayne from exceeding tropical storm intensity.

Surprisingly, satellite imagery at 181800Z indicated Wayne had apparently developed an eye. The warning was amended four hours later as subsequent satellite imagery confirmed the presence of an eye and further intensification. At 190000Z, Wayne was upgraded to a typhoon. While not a common occurrence, intensification after recurvature can occur when a tropical cyclone recurves at relatively low latitudes; and the jet stream provides an efficient outflow channel. A favored time for such intensification (Guard, 1983) is during the fall when warm sea surface temperatures extend into higher latitudes.

Significant acceleration started at 190000Z, and Wayne (Figure 3-25-1) was downgraded to a tropical storm at 191800Z.

Fortunately for Japan, as Wayne accelerated, the translational speed diminished the maximum sustained wind speeds in the northwest quadrant, which was over land. Yokota AB, Japan (WMO 47642), experienced maximum sustained winds of 14 kt (7 m/sec) with a peak gust to 19 knots (10 m/sec), even though Wayne passed only 45 nm (85 km) to the southeast. Tateyama (WMO 47672), southeast of Yokosuka at the mouth of Sagami Bay, took a direct hit from Tropical Storm Wayne, and after the storm passed, the station recorded 60 kt (31 m/sec) sustained winds with gusts to 84 kt (43 m/sec). Heavy rains caused flooding and mudslides. News reports indicated at least seven people died and over 4000 homes were flooded.

By 191800Z, Wayne's translational speed had increased to 40 kt (74 km/hr) and the system began to transition into an extratropical low. JTWC issued the final warning on Wayne at 200600Z as it underwent a compound transition (Brand and Guard, 1978) and merged with a cold-core low east of Hokkaido.